

Missouri Student Survey 2008

Missouri Department of Mental Health Division of Alcohol and Drug Abuse



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Summary of Findings

Background

National trends in adolescent substance use are encouraging. According to data from the National Survey on Drug Use and Health (NSDUH), cigarettes, alcohol, and drug use remained stable between 2006 and 2007 among youth 12-17 years of age. From 2002 to 2007, rates of current use among 12 to 17 year old youth significantly declined overall for illicit drugs and for several specific drugs, including marijuana, cocaine, hallucinogens, LSD, ecstasy, prescription-type drugs used nonmedically, pain relievers, stimulants, methamphetamine, and illicit drugs other than marijuana (Office of Applied Studies, <http://oas.samhsa.gov/nsduh/2k7nsduh/2k7Results.cfm#2.2>).

Despite this progress, many school-aged youth continue to engage in behaviors that put them at risk for injury, disease, and loss of life. Nationwide, the majority of deaths among those ages 10-24 can be attributed to only four causes: motor vehicle crashes (31%), homicide (15%), suicide (11%), and other unintentional injuries (14%) (Eaton et al., 2006). In 2005, 16% of drivers ages 16-20 who died in automobile accidents had a blood alcohol count of 0.08 g/dl or higher (NHTSA, 2005). Alcohol abuse can, moreover, result in family dysfunction, job loss, and overall loss of quality of life. Tobacco use, which for most users begins in adolescence, is the leading preventable cause of death in the United States, and every year causes more than 440,000 deaths (CDC, 2006). Five million people 18 years old and younger will die prematurely of tobacco related disease if current patterns of smoking continue (CDC, 2006).

The Missouri Student Survey

Every even numbered year since 2000, the Missouri Department of Mental Health (DMH) has conducted the Missouri Student Survey (MSS) to monitor the risk behaviors of adolescent youth. The 2000 MSS, conducted by Research Triangle Institute, was funded by the U.S. Department of Health and Human Services Substance Abuse and Mental Health Services Administration (SAMHSA). Since then, the DMH has contracted with the Missouri Institute of Mental Health (MIMH) to analyze the survey data. The Missouri Department of Elementary and Secondary Education (DESE), which in previous years conducted its own survey, joined with the DMH in 2004 in implementing the survey.

The Missouri Student Survey (MSS) assesses substance use and related behaviors among 6th through 12th graders attending public schools across the state. This year's survey included 126,923 youth, more than twice the number surveyed in 2004 and 2006. Of the total, 115,120 participant surveys were analyzed, the results of which are reported here.

Because some students did not complete the questionnaire, reported inaccurate or inconsistent information, or indicated that they were dishonest in completing the survey, there was a loss of 11,803 student questionnaires (see Methods section in the Appendix for further information about data cleaning). This report presents the results of the 2008 Missouri Student Survey showing trends in health-related behaviors of students in the state. The chart below highlights this year’s key findings.

Table 1. Missouri Student Survey 2008. Missouri and National Comparisons

	2006	2008	National ¹
Substance Use			
Lifetime alcohol use	61.0%	58.2%	52.9%
30-day alcohol use	26.3%	26.6%	15.9%
Binge drinking (MSS, in past 30 days (NSDUH, 2007)²	11.8%	12.0%	9.7%
Been drunk or high at school in the past year	12.6%	13.1%	n/a
Age of first use of alcohol	12.19	12.39	13.14
Lifetime marijuana use	16.4%	16.8%	16.2%
30-day marijuana use	7.2%	7.8%	6.7%
Age of first use of marijuana	13.23	13.27	13.69 ³
Lifetime use of cigarettes	35.9%	27.7%	23.7%
30-day cigarette use	12.7%	12.6%	9.8%
Age of first use of cigarettes	11.79	11.88	12.59*

¹ National statistics are derived from the NSDUH (2007) unless otherwise noted.

² MSS and NSDUH wording are slightly different. MSS: “Think back over the last two weeks. How many times have you had five or more alcoholic drinks in a row?” NSDUH wording: “How many times have you had five or more drinks on the same occasion (i.e., at the same time or within a couple of hours of each other) on at least 1 day in the past 30 days.”

³ National Survey on Drug Use and Health (NSDUH) 2006.

	2006	2008	National ⁴
Substance Use			
Lifetime use of chewing tobacco	12.6%	13.7%	7.7% ⁵
30-day use of chewing tobacco	5.0%	3.1%	2.4% ⁶
Lifetime use of inhalants	11.9%	9.4%	9.6%
30-day use of inhalants	4.6%	4.1%	1.2%
Lifetime use of speed, amphetamines, or methamphetamine	2.8%	2.7%	4.4% ⁷
Lifetime use of cocaine/crack	2.4%	2.4%	7.2% ⁸
Lifetime use of ecstasy or other club drugs	2.2%	2.5%	1.8% ⁹
Lifetime use of steroid pills or shots w/out doctor prescription	2.3%	2.4%	3.9% ¹⁰
Lifetime use of other illegal drugs	9.8%	9.6%	n/a
Lifetime use of illegal drug to inject illegal drug into body	0.8%	0.8%	0.2% ¹¹
Rode with someone who was drinking alcohol (past 30 days)	22.1%	20.1%	29.1% ¹²
Drove while drinking alcohol (past 30 days)	5.6%	5.5%	n/a

⁴ National statistics are derived from the NSDUH (2007) unless otherwise noted.

⁵ NSDUH (2007) does not ask for use of chewing tobacco separately from smokeless tobacco, which includes dip or snuff in addition to chewing tobacco.

⁶ NSDUH (2007) does not ask for use of chewing tobacco separately from smokeless tobacco, which includes dip or snuff in addition to chewing tobacco.

⁷ Youth Risk Behavior Surveillance Survey (YRBS; 2007), 9th-12th grade (Methamphetamine only); MSS 2008, 9th – 12th grade, 3.8%

⁸ YRBS (2007), 9th-12th grade.; MSS (2008), 9th – 12th grade, 3.0%

⁹ NSDUH (2007) (ecstasy only)

¹⁰ YRBS (2007), 9th-12th grade; MSS 2008, 9th – 12th grade, 2.6%

¹¹ YRBS (2007), 9th-12th grade; MSS 2008, 9th – 12th grade, 1.0%

¹² YRBS (2007), 9th-12th grade; MSS 2008, 9th – 12th grade, 22.1%

	2006	2008	National ¹³
Problem Behaviors			
Been in physical fight in the past year	35.8%	39.0%	35.1% ¹⁴
Used a weapon to threaten someone in the past year	7.6%	9.1%	7.8% ¹⁵
Been suspended from school in the past year	17.6%	18.7%	n/a
Been arrested in the past year	5.5%	6.3%	n/a
Been pushed, shoved, slapped, hit or kicked by someone who wasn't just kidding around in the past year	48.1%	48.2%	n/a
Been threatened by or injured with a weapon such as a gun, knife or club in the past year	12.3%	12.8%	7.8% ¹⁶
Sold illegal drugs	6%	6.9%	n/a
Taken a gun to school.	1.8%	1.9%	4.9% ¹⁷
Suicidal Ideation			
Considered suicide in past 12 months	14.3%	14.8%	14.5% ¹⁸
Planned suicide in past 12 months	10.4%	10.8%	n/a
Attempted suicide in past 12 months	6.5%	6.3%	6.9% ¹⁹

¹³ National statistics are derived from the NSDUH (2007) unless otherwise noted.

¹⁴ Youth Risk Behavior Surveillance Survey (YRBS; 2007), 9th-12th grade; MSS (2008), 9th – 12th grade, 37.0%

¹⁵ YRBS (2007), 9th – 12th grade (refers to threats and/or injuries on school property); MSS (2008), 9th – 12th grade, 9.5%

¹⁶ YRBS (2007), 9th – 12th grade (refers to threats and/or injuries on school property); MSS (2008), 9th – 12th grade, 13.1%

¹⁷ YRBS (2007), 9th – 12th grade; MSS (2008), 9th – 12th grade, 2.0%

¹⁸ YRBS (2007), 9th – 12th grade; MSS (2008), 9th – 12th grade, 15.8%

¹⁹ YRBS (2007), 9th – 12th grade; MSS (2008), 9th – 12th grade, 6.6%

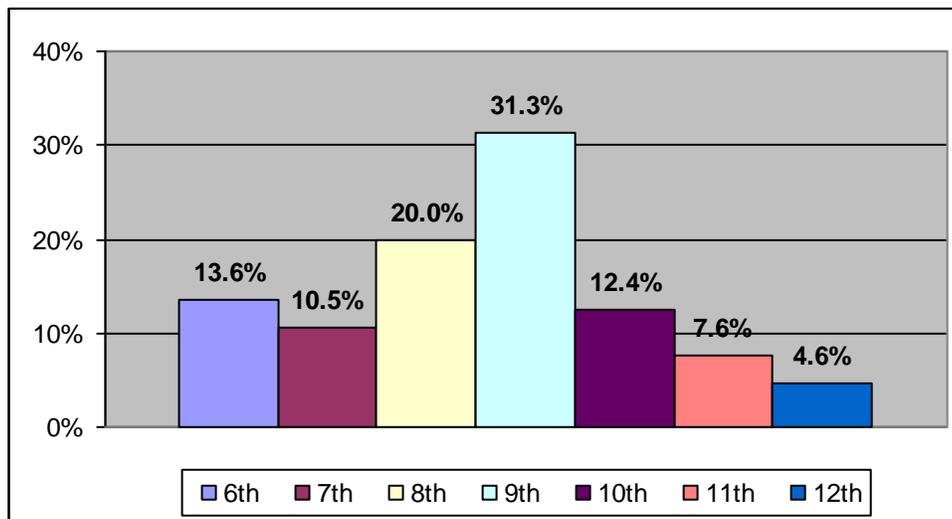
Participant Age

Schools were asked to survey their 9th grade students and one other grade. Most youth who participated in the 2008 MSS were between the ages of 13 and 15. The participants were 14.31 years of age on average, with over half in 8th or 9th grade (see Table 2).

Table 2. Age of Participants

Age	Number	Percent
10	36	0.0%
11	5376	4.7%
12	13390	11.6%
13	16024	13.9%
14	26542	23.1%
15	28241	24.5%
16	13642	11.9%
17	7983	6.9%
18	3606	3.1%
19 or older	252	0.2%

Figure 1. Grade Level of Participants



Regional Distribution

All of the DMH’s Alcohol and Drug Abuse (ADA) planning regions (see Figure 2) were represented to varying degrees (see Table 3). The participant distribution across regions was similar to past MSS administrations; however, in 2004 the Northwest region had the highest representation. In 2008, The Eastern region had the highest representation (28.7%) followed by the Northwest region. The lowest percentage of youth was from the Central and Southeast regions.

Table 3. Regional Distribution of Participants

	Total
Northwest	23.1%
Central	13.8%
Eastern	28.7%
Southwest	21.2%
Southeast	13.2%

Participant Sex

Regardless of region, the percentage of males and females who responded to the 2008 MSS was relatively equal, with slightly more females than males (see Table 4). The percentage of males and females in the MSS sample are representative of the total population of 11-18 year olds in the state.²⁰

Table 4. Sex of Participants by Region

	Total	Northwest	Central	Eastern	Southwest	Southeast
Female	51.2%	50.8%	51.3%	51.5%	51.2%	51.2%
Male	48.8%	49.2%	48.7%	48.5%	48.8%	48.8%

²⁰ 51.1% of the Missouri population of 11-18 year olds is female (Missouri Census Data Center, 2007).

Participant Race/Ethnicity

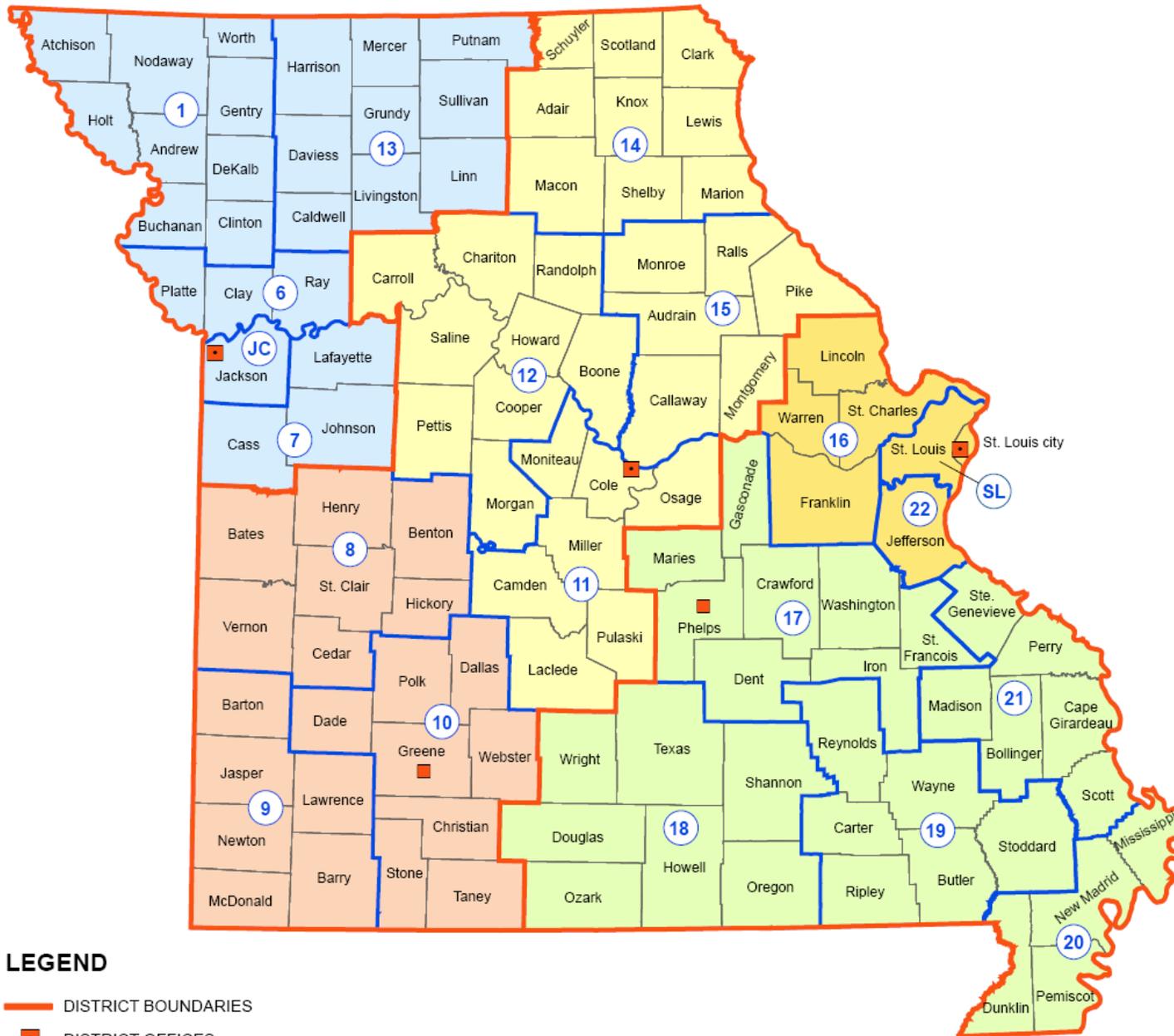
The majority of the sample was non-Hispanic Whites who were mainly from Southeast, Southwest and Central regions of Missouri. The second largest group was non-Hispanic Blacks, and was mainly from the Eastern and Northwest regions. These percentages are similar to the Missouri population of 11-18 year olds, with a slightly lower percentage of non-Hispanic Blacks and slightly more Hispanics in this sample.²¹

Table 5. Race/Ethnicity of Participants by Region

	Total	Northwest	Central	Eastern	Southwest	Southeast
Hispanic/Latino	5.7%	7.7%	5.3%	4.5%	6.2%	4.5%
Non-Hispanic White	78.4%	76.3%	85.9%	66.9%	86.0%	87.4%
Non-Hispanic Black	12.2%	12.4%	5.8%	24.7%	3.4%	5.8%
Non-Hispanic Asian	1.7%	1.4%	1.4%	2.5%	1.7%	.7%
Non-Hispanic American Indian/Alaskan Native	1.4%	1.6%	1.2%	.8%	2.2%	1.3%
Non-Hispanic Native Hawaiian/Pacific Islander	0.5%	0.6%	0.4%	0.4%	0.6%	0.3%

²¹ Estimated population of 11-18 years by race: 78.8% non-Hispanic White, 15.4% non-Hispanic Black, .6% American Indian, 1.4% Asian, 3.7% Hispanic.

Figure 2. Division of Alcohol and Drug Abuse Regional Designations



LEGEND

- DISTRICT BOUNDARIES
- DISTRICT OFFICES
- SATELLITE OFFICES
- SERVICE AREA BOUNDARIES
- 14 SERVICE AREA NAMES
- NORTHWEST PLANNING REGION
- CENTRAL PLANNING REGION
- EASTERN PLANNING REGION
- SOUTHWEST PLANNING REGION
- SOUTHEAST PLANNING REGION

Chapter 2 – Substance Use

The Substance Abuse and Mental Health Services Administration (SAMHSA) has identified key indicators, known as National Outcome Measures (or NOMS) that states are required to report to assess how well they are doing in implementing SAMHSA-funded programs. In the area of prevention, four NOMS have been identified for reporting purposes. These include (1) past 30-day cigarette, alcohol, marijuana, other tobacco products and illegal drug use; (2) age of first use of cigarettes, alcohol, marijuana, other tobacco product and illegal drug use; (3) approval of cigarette, alcohol and marijuana use; and (4) perceived risk/harm from cigarette, alcohol and marijuana use. This chapter reports findings on 30-day substance use and age of initiation and related substance use questions reported in the MSS; the following chapter reports on approval and risk/harm from substance use.

Substance Use in Missouri and the Nation

Table 6 below shows substance use (alcohol, marijuana, cigarettes and inhalants) for Missouri youth compared to substance use nationally based on data from the 2007 NSDUH (2006 data are reported where 2007 data were unavailable). Measures of lifetime and 30-day use, binge drinking and age of initiation are presented.

In both Missouri and the nation, alcohol use was higher than all other drugs, followed by cigarette and marijuana use. Alcohol, cigarette and inhalant use was higher in Missouri than nationally. Marijuana use rates were fairly equal. As has been the trend in the past in Missouri, alcohol was the substance used by most youth both in their lifetime and the past 30 days, followed by cigarettes, marijuana and inhalants. Youth began using cigarettes at an earlier age than alcohol and marijuana.

Table 6. Substance Use: Missouri and National Data

	2008 Missouri Sample (MSS) ¹	2007 U.S. Sample (NSDUH) ²
Alcohol Use		
Lifetime Use	58.2%	52.9%
30-day Use	26.6%	15.9%
Age of Initiation	12.39	13.14 ²²
Binge Drinking	12.0%	9.7%
Marijuana Use		
Lifetime Use	16.8%	16.2%
30-day Use	7.8%	6.7%
Age of Initiation	13.27	13.69 ²³
Cigarette Use		
Lifetime Use	27.7%	23.7%
30-day Use	12.6%	9.8%
Age of Initiation	11.88	12.59 ²⁴
Inhalant Use		
Lifetime Use	9.4%	9.6%
30-day Use	4.1%	1.2%

¹MSS 2008, 6th – 12th grade, n = 115,120

²NSDUH 2007, 12 – 17 years of age, n = 25,241

²² NSDUH 2006.

²³ NSDUH 2006.

²⁴ NSDUH 2006.

Year to Year Comparisons

Table 7 below compares 30-day substance use between the 2004, 2006 and 2008 Missouri Student Survey data. In general, use in all categories decreased from 2004 to 2006 and has remained relatively stable this year. Alcohol was consistently used by more respondents than other drugs.²⁵

Table 7. 30-Day Use in Missouri by Year

	2004 ¹	2006 ²	2008 ³
Alcohol	30.0%	26.5%	26.6%
Marijuana	8.0%	7.0%	8.2%
Cigarettes	15.8%	13.0%	12.8%

¹MSS 2004, 6th – 12th grade, n = 59,082

²MSS 2006, 6th – 12th grade, n = 68,807

³MSS 2008, 6th – 12th grade, n = 115,120

Lifetime Substance Use

Students were asked whether they had ever used various substances (i.e. lifetime use). Alcohol was used the most, followed by cigarettes, marijuana, chewing tobacco, inhalants, and other illegal drugs. All other illegal drug use, regardless of the specific drug (psychedelics, cocaine, etc.), was used by under 3% of youth.

Table 8. Lifetime and 30-Day Substance Use

	Lifetime	30-day
Chewing tobacco	13.7%	6.1%
Cigarettes	27.7%	12.8%
Alcohol	58.2%	26.6%
Marijuana	18.5%	8.2%
LSD or other psychedelics	2.2%	0.9%
Cocaine (powder, crack, freebase)	2.4%	1.1%
Inhalants	9.8%	4.1%
Speed, amphetamines or meth.	2.7%	1.0%
Ecstasy or other club drugs (GHB, Rohypnol, ketamine)	2.5%	1.1%
Steroids without a doctor's prescription	2.4%	n/a
Other illegal drugs	9.6%	4.5%
Used a needle to inject any illegal drug	0.8%	n/a

Figure 3. Lifetime Substance Use

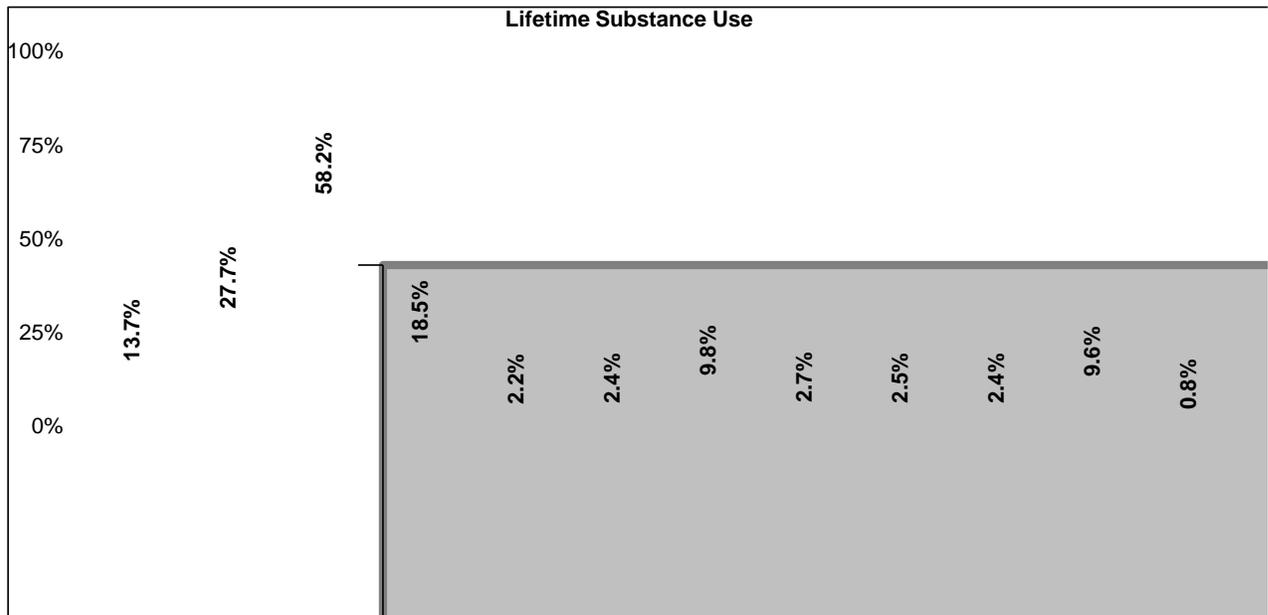
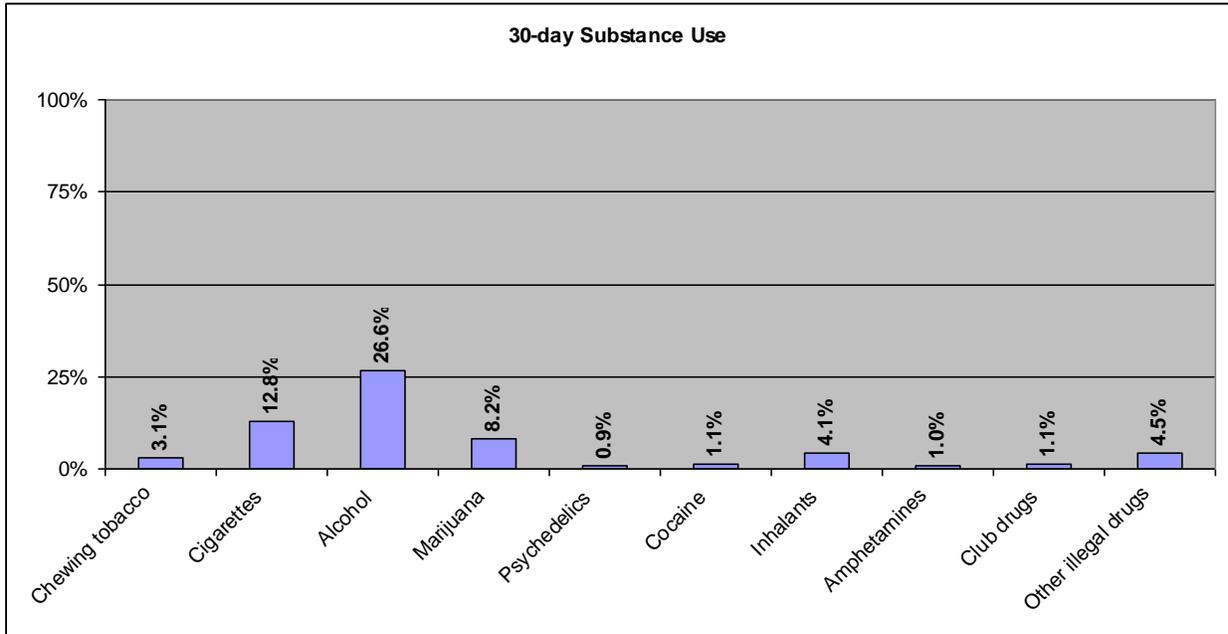


Figure 4. 30-Day Substance Use



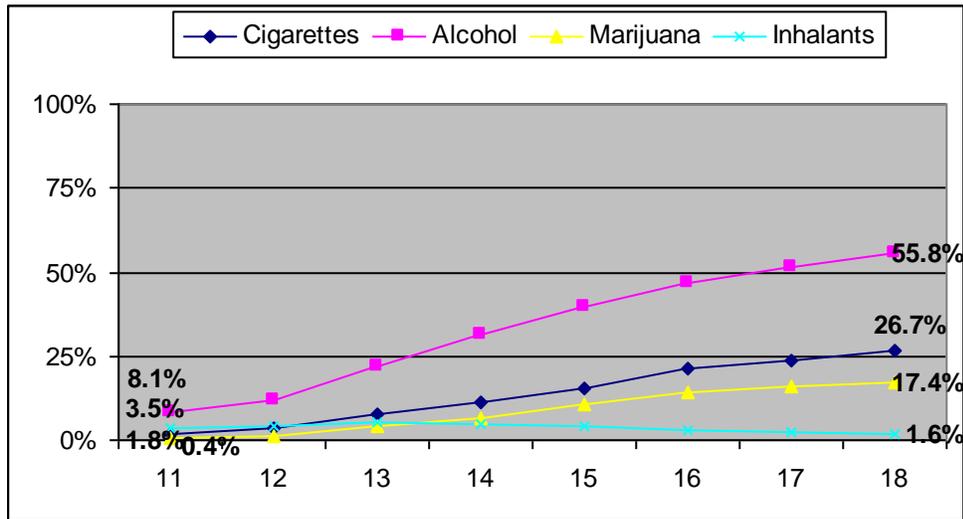
Substance Use by Age

Cigarette, alcohol and marijuana use all increased dramatically between 6th and 12th grade, with almost half of all youth in 12th grade reporting that they had consumed alcohol in the past 30 days. Use of inhalants, on the other hand, among younger youth is higher than use among older youth (see Table 9 and Figure 4).

Table 9. Percentage of 30-Day Use by Grade

	6 th – 8 th grade	9 th grade	10 th – 12 th grade
Cigarettes	7.1%	14.3%	21.3%
Alcohol	20.5%	37.7%	48.8%
Marijuana	3.8%	9.3%	14.6%
Inhalants	5.0%	4.0%	2.5%

Figure 5. Percentage of 30-Day Use by Age



Substance Use by Sex

When lifetime substance use by gender was considered (Table 10), more females reported using cigarettes, alcohol and inhalants than did males. A greater percentage of males, however, reported using marijuana in their lifetime than did females. 30-day use trends were similar: more females than males reported using all substances other than marijuana. However, age of initiation for cigarettes, alcohol and marijuana tended to be higher for females than for males. In other words, females reported using these respective substances at a *later* age than did males. For example, males reported beginning to use cigarettes at an average age of 11.78 years, and females at an average age of 11.98 years. Similarly, alcohol use for males began at an average age of 12.17 versus at an average age of 12.60 for females. Cigarette use began earlier than other substances for both males and females, followed by alcohol and marijuana.

Table 10. Substance Use of Males and Females

	Lifetime		30-day		Age of initiation	
	Males	Females	Males	Females	Males	Females
Cigarettes	27.2%	28.1%	12.0%	13.2%	11.78	11.98
Alcohol	56.7%	59.6%	25.2%	28.1%	12.17	12.60
Marijuana	17.5%	16.1%	8.4%	7.3%	13.10	13.45
Inhalants	8.4%	10.8%	3.4%	4.8%	n/a	n/a

Substance Use by Region

A greater percentage of youth had used alcohol in their lifetime and within the past 30-days than any other substance, regardless of region, followed by cigarettes, marijuana and inhalants (Table 11 and 12). Alcohol was used by more participants in the Central region than any other, with the lowest percentage of users in the Southwest region. Cigarettes were used by more participants in the Southeast region than any other, with the lowest percentage of users in the Eastern region. Marijuana was used by more participants in the Eastern region than any other, with the lowest percentage of users in the Southwest region. Inhalants were used by more participants in the Central and Southeast regions than in any other region.

Table 11. Percentage of Lifetime Use by Region

	US ¹	MO ²	Northwest	Central	Eastern	Southwest	Southeast
Cigarettes	23.7%	27.7%	27.3%	30.3%	25.4%	26.2%	32.8%
Alcohol	52.9%	58.2%	57.9%	63.2%	59.9%	52.0%	59.8%
Marijuana	16.2%	16.8%	18.6%	17.2%	21.4%	16.1%	17.3%
Inhalants	9.6%	9.4%	9.7%	10.9%	9.4%	9.6%	10.5%

¹NSDUH 2007, 12-17 years of age, n = 25,241

²MSS 2008), 6th – 12th grade, n = 115,120

Table 12. Percentage of 30-Day Use by Region

	US ¹	MO ²	Northwest	Central	Eastern	Southwest	Southeast
Cigarettes	9.8%	12.6%	13.0%	14.1%	11.6%	11.9%	15.4%
Alcohol	15.9%	26.6%	26.8%	30.7%	27.9%	21.3%	27.7%
Marijuana	6.7%	7.8%	8.2%	7.3%	10.0%	6.9%	7.2%
Inhalants	1.2%	4.1%	4.0%	4.6%	4.0%	4.0%	4.4%

¹NSDUH 2007, 12-17 years of age, n = 25,241

²MSS 2008, 6th – 12th grade, n = 115,120

Chapter 3 – Attitudes toward Substance Use

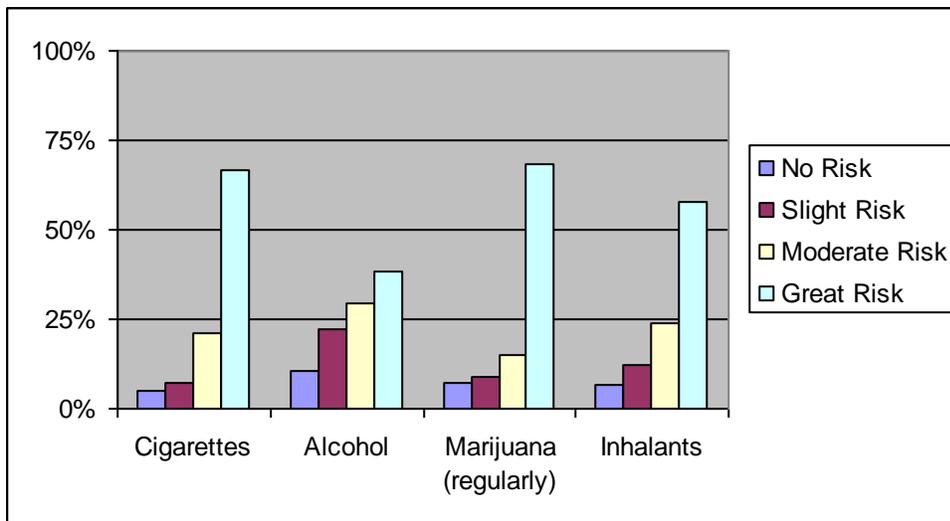
The majority of youth thought that the use of most substances posed a great risk to themselves physically and in other ways. Youth perceived the use of methamphetamine and cocaine to pose the greatest amount of risk with 82.6% and 80.2% of the sample reporting these substances posed a great risk, respectively. Over 60% of the sample thought the use of other substances posed great risk as well, with the exception of occasional use of marijuana (36.5%), alcohol use (38.2%), and inhalant use (57.6%; Table 13).

Table 13. How much do people risk harming themselves physically and in other ways if they:

	No Risk %	Slight Risk %	Moderate Risk %	Great Risk %
Smoke one or more packs of cigarettes a day	4.9%	7.3%	20.9%	66.9%
Try marijuana once or twice	15.4%	23.4%	24.7%	36.5%
Smoke marijuana regularly	7.4%	8.9%	15.2%	68.5%
Take one or two drinks of an alcoholic beverage nearly every day	10.6%	22.1%	29.2%	38.2%
Use ecstasy occasionally (more than once a twice)	5.2%	5.8%	17.5%	71.6%
Use methamphetamine occasionally (more than once or twice)	4.4%	2.8%	10.3%	82.6%
Use LSD or other psychedelic drugs occasionally (more than once or twice)	4.7%	3.5%	12.5%	79.2%
Take cocaine in any form occasionally (more than once or twice)	4.6%	3.2%	12.0%	80.2%
Sniff glue or other inhalants occasionally (more than once or twice)	6.6%	12.1%	23.7%	57.6%
Take designer drugs (ecstasy, X, G, etc.) occasionally (more than once or twice)	4.9%	4.2%	14.0%	76.9%

Most youth (66.9%) reported that they placed themselves at a great risk if they smoked one or more packs of cigarettes a day, versus 4.9% who believed they were at no risk when they did so. While the majority of youth agreed that regular marijuana use posed great risk (68.5%), occasional marijuana use (once or twice) was seen by 15.4% as posing no risk and only 36.5% reported it as a great risk. Only 38.2% believed having a drink or two of alcohol nearly everyday would put them at great risk. While a majority of youth (57.6%) thought the use of inhalants posed great risk, the perception of risk for this drug was lower than the majority of other drugs.

Figure 6. Perception of Harm by Substance



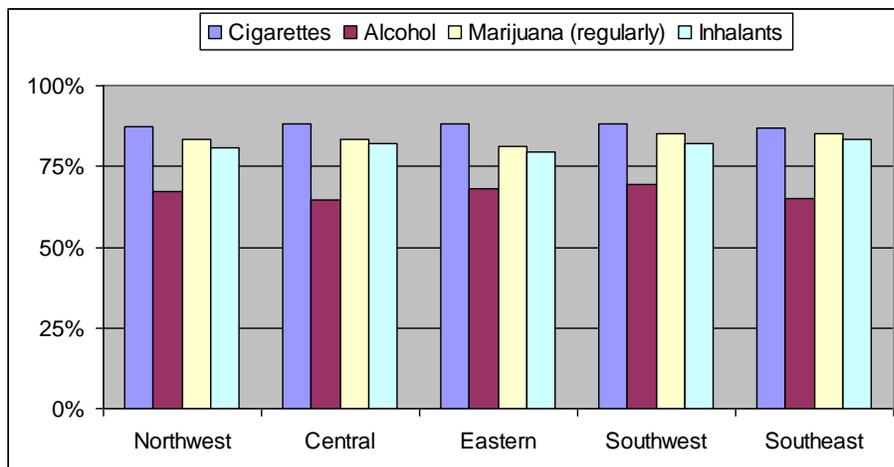
Moderate or Great Risk of Harm from Substance Use by Region

Regardless of region, the majority of the sample regarded the use of substances as risky. In fact the use of methamphetamine, psychedelics, cocaine, and club drugs was considered to be either a moderate or great risk by over 90% of the sample, regardless of region. It is interesting to note, however, that while the perception of drug use was similar across regions, with the exception of cigarette use, the Central region consistently perceived drug use as slightly less risky than the remainder of the state, especially trying marijuana once or twice.

Table 14. Percentage of youth who thought substance use posed moderate or great risk to themselves physically or in other ways by region

	Total %	Northwest %	Central %	Eastern %	Southwest %	Southeast %
Smoke one or more packs of cigarettes a day	87.2%	88.1%	88.1%	88.3%	86.9%	86.9%
Try marijuana once or twice	61.0%	63.4%	55.9%	65.0%	64.7%	64.7%
Smoke marijuana regularly	83.6%	83.3%	81.4%	85.1%	85.2%	85.2%
Take one or two drinks of an alcoholic beverage nearly every day	67.3%	64.7%	68.2%	69.3%	65.1%	65.1%
Use ecstasy occasionally (more than once a twice)	88.7%	90.2%	88.2%	89.5%	89.5%	89.5%
Use methamphetamine occasionally (more than once or twice)	92.3%	94.0%	91.9%	93.4%	93.4%	93.4%
Use LSD or other psychedelic drugs occasionally (more than once or twice)	91.4%	92.8%	90.9%	92.3%	92.4%	92.4%
Take cocaine in any form occasionally (more than once or twice)	91.8%	93.3%	91.4%	92.7%	92.6%	92.6%
Sniff glue or other inhalants occasionally (more than once or twice)	80.9%	82.0%	79.5%	82.3%	83.5%	83.5%
Take designer drugs (ecstasy, X, G, etc.) occasionally (more than once or twice)	90.5%	92.1%	90.1%	91.3%	91.4%	91.4%

Figure 7. Moderate or Great Risk of Harm from Substance Use by Region



Moderate or Great Risk of Harm from Substance Use by Gender

Females felt that substance use posed a greater risk than males (Table 15). This difference was most pronounced in perceived harm from alcohol use. Only 63.5% of males thought taking one or two drinks of alcohol to pose moderate or great risk, whereas 71.0% of females thought this behavior to be of moderate or great risk.

Table 15. Percentage of youth, females and males, who thought substance use posed moderate or great risk to themselves physically or in other ways.

	Female	Male
Smoke one or more packs of cigarettes a day	88.9%	86.6%
Try marijuana once or twice	63.0%	59.2%
Smoke marijuana regularly	86.0%	81.3%
Take one or two drinks of an alcoholic beverage nearly every day	71.0%	63.5%
Use ecstasy occasionally (more than once a twice)	90.6%	87.5%
Use methamphetamine occasionally (more than once or twice)	93.8%	91.8%
Use LSD or other psychedelic drugs occasionally (more than once or twice)	93.1%	90.4%
Take cocaine in any form occasionally (more than once or twice)	93.3%	91.0%
Sniff glue or other inhalants occasionally (more than once or twice)	82.3%	80.3%
Take designer drugs (ecstasy, X, G, etc.) occasionally (more than once or twice)	92.2%	89.5%

Moderate or Great Risk of Harm from Substance Use by Grade and Age

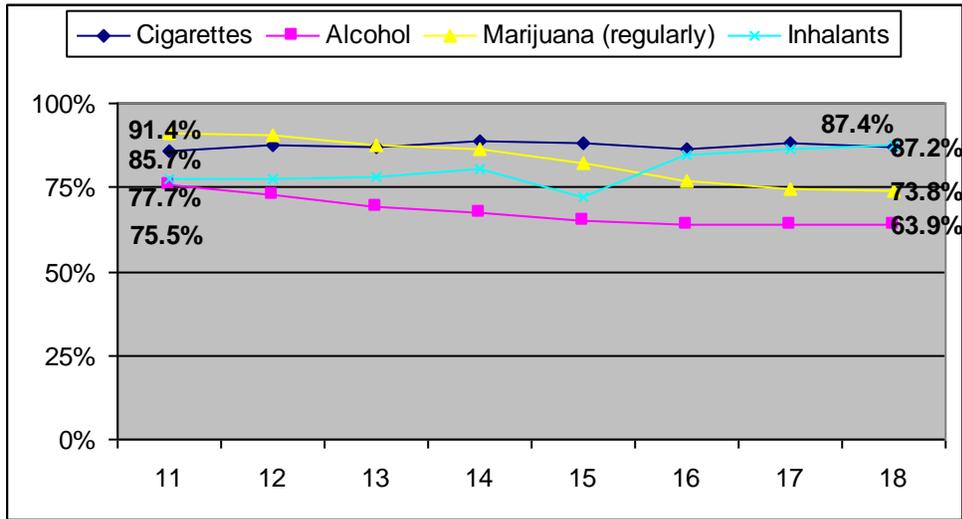
When youths' perception of the risk associated with substance use was observed across grade levels and age, interesting trends begin to emerge (Table 16). Cigarette use was perceived as risky regardless of the grade level or age of the participant. However, the use of marijuana, especially the use of it only once or twice, and the use of alcohol were considered to be less risky by students in higher grade levels than those in lower grade

levels. The opposite trend was observed when considering the use of other drugs. That is, the older the youth, the more likely they perceived as risky the use of club drugs, methamphetamine, psychedelics, cocaine, and especially inhalants; 77.8% of youth in the 6th – 8th grades regarded inhalant use as posing a moderate or great risk, whereas 86.0% of 10th – 12th graders thought so. While not a significant difference, the trend for inhalant use suggests that 15 year olds perceived inhalant use to be slightly less risky than youth of other ages.

Table 16. Percentage of youth by grade who thought substance use posed moderate or great risk to themselves physically or in other ways.

	6 th – 8 th grade	9 th grade	10 th – 12 th grade
Smoke one or more packs of cigarettes a day	87.1%	88.4%	88.2%
Try marijuana once or twice	71.3%	57.9%	47.1%
Smoke marijuana regularly	87.7%	83.5%	77.9%
Take one or two drinks of an alcoholic beverage nearly every day	69.8%	65.8%	64.8%
Use ecstasy occasionally (more than once or twice)	87.6%	89.9%	90.5%
Use methamphetamine occasionally (more than once or twice)	91.0%	93.9%	94.7%
Use LSD or other psychedelic drugs occasionally (more than once or twice)	90.4%	92.8%	92.9%
Take cocaine in any form occasionally (more than once or twice)	90.6%	93.3%	93.6%
Sniff glue or other inhalants occasionally (more than once or twice)	77.8%	82.6%	86.0%
Take designer drugs (ecstasy, X, G, etc.) occasionally (more than once or twice)	89.3%	91.9%	92.5%

Figure 8. Moderate or Great Risk of Harm from Substance Use by Age



Perception of Disapproving Attitudes (NOM)

The NOMs measures of “perceptions of disapproving attitudes” were assessed by questions asking about the perceived wrongfulness of using different substances. Table 17 below shows perceptions of disapproving attitudes. Most youth reported the use of methamphetamine, club drugs, or ecstasy and the use of LSD, cocaine, amphetamines and other illegal drugs as being very wrong (87.6% and 87.3%, respectively). Drinking alcohol was reported “very wrong behavior” by the fewest percentage of youth (51.85%).

Table 17. How wrong do you think it is for someone your age to:

	Very Wrong %	Wrong %	A Little Bit Wrong %	Not Wrong at All %
Drink beer, wine, or hard liquor regularly	51.8%	21.9%	17.9%	8.5%
Smoke cigarettes	59.9%	21.1%	11.5%	7.5%
Smoke marijuana	72.3%	13.5%	7.7%	6.5%
Use LSD, cocaine, amphetamines, or other illegal drugs	87.3%	8.4%	2.4%	1.9%
Use methamphetamine, club drugs, or ecstasy	87.6%	8.2%	2.4%	1.9%

Wrongfulness of Substance Use by Region

The majority of youth, regardless of region, thought the use of substances was either wrong or very wrong (Table 18). Where perceptions of wrongfulness did vary by region, it was consistent with the percentage of lifetime and 30-day users within that region. For example, youth in the Southeast and Central regions perceived the use of cigarettes was less wrong than youth in other regions. This was also true of the Southeast and Central regions when lifetime and past 30-day use was examined.

Table 18. Wrongfulness of Substance Use by Region (% Very Wrong and Wrong)

	Northwest	Central	Eastern	Southwest	Southeast
Drink beer, wine, or hard liquor regularly	73.5%	70.0%	72.4%	78.6%	72.8%
Smoke cigarettes	80.7%	79.7%	81.9%	82.4%	78.5%
Smoke marijuana	85.9%	87.0%	83.2%	87.5%	87.6%
Use LSD, cocaine, amphetamines, or other illegal drugs	95.5%	95.8%	95.5%	96.1%	96.1%
Use methamphetamine, club drugs, or ecstasy	95.4%	96.0%	95.4%	96.2%	96.3%

The perception of wrongfulness of drug use did not vary much by gender (Table 19). Slightly more males saw smoking cigarettes as wrong or very wrong and a higher percentage of females saw use of all other substances as wrong or very wrong.

Table 19. Wrongfulness of Substance Use by Gender (% Very Wrong and Wrong)

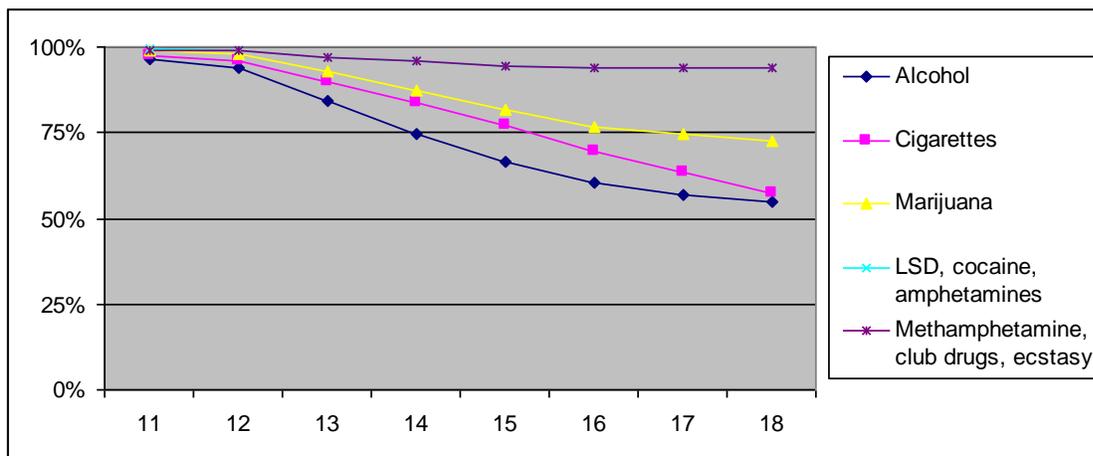
	Female	Male
Drink beer, wine, or hard liquor regularly	73.8%	73.5%
Smoke cigarettes	80.5%	81.5%
Smoke marijuana	86.8%	84.9%
Use LSD, cocaine, amphetamines, or other illegal drugs	96.2%	95.2%
Use methamphetamine, club drugs, or ecstasy	96.3%	95.2%

The perception of wrongfulness of drug use decreased as grade level and/or age increased. In other words, the higher the grade level or age, the lower the percentage of youth who perceived the use of drugs was wrong. This trend varied depending on the substance being considered. The percentage of youth who thought the use of cigarettes, alcohol, and marijuana were wrong decreased dramatically as grade level and age increased, with the greatest difference occurring among youths' perception of alcohol use. For example, 85.9% of youth in the 6th – 8th grade thought alcohol was wrong to use, as compared to only 58.9% of youth in the 10th -12th grade. When other illegal drugs are considered however, the percentage of youth considering them wrong to use, while decreasing slightly, still remains above 90% of the sample.

Table 20. Wrongfulness of Substance Use by Grade (% Very Wrong and Wrong)

	6 th – 8 th grade	9 th grade	10 th – 12 th grade
Drink beer, wine, or hard liquor regularly	85.9%	68.0%	58.9%
Smoke cigarettes	90.5%	78.5%	66.9%
Smoke marijuana	93.4%	83.0%	75.8%
Use LSD, cocaine, amphetamines, or other illegal drugs	97.4%	94.9%	93.8%
Use methamphetamine, club drugs, or ecstasy	97.3%	94.9%	94.1%

Figure 9. Wrongfulness by Age



Chapter 4 – School Experience

Students were asked several questions about their school experience, including about grades, attendance, and attitudes towards school and their teachers.

Grades in School

Over 40% of youth, the majority of whom were females, reported receiving “mostly As” last year. Younger youth reported significantly higher grades than older youth. Females reported receiving higher grades than males.

Figure 10. Putting it all together, how were your grades last year?

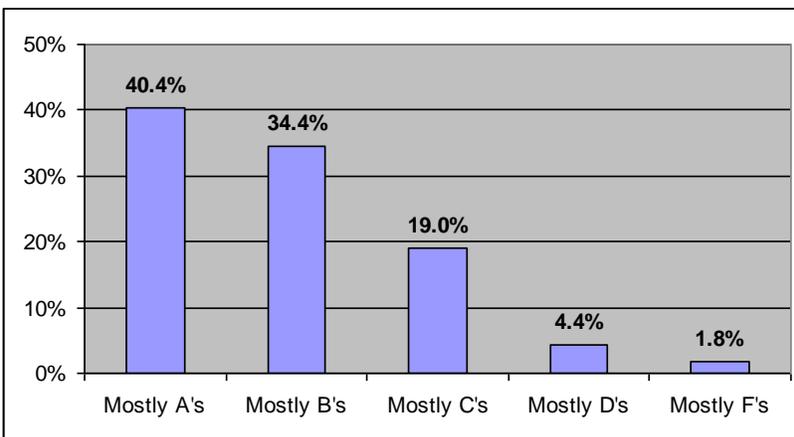


Figure 11. Grades by Age

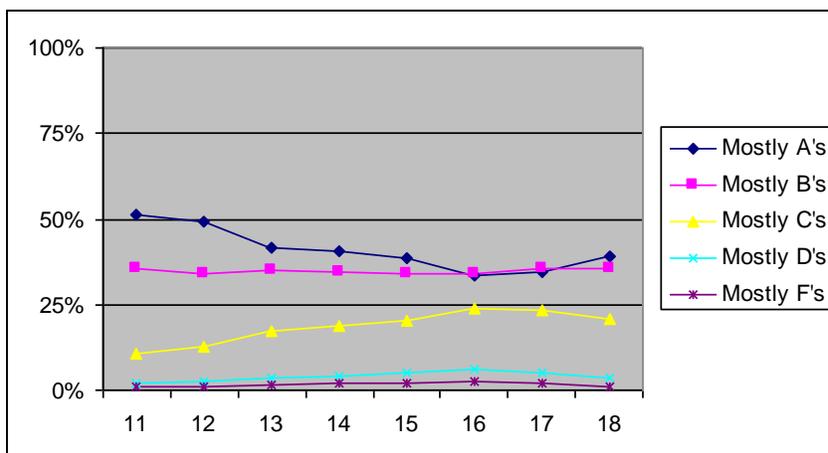


Figure 12. Grades by Gender

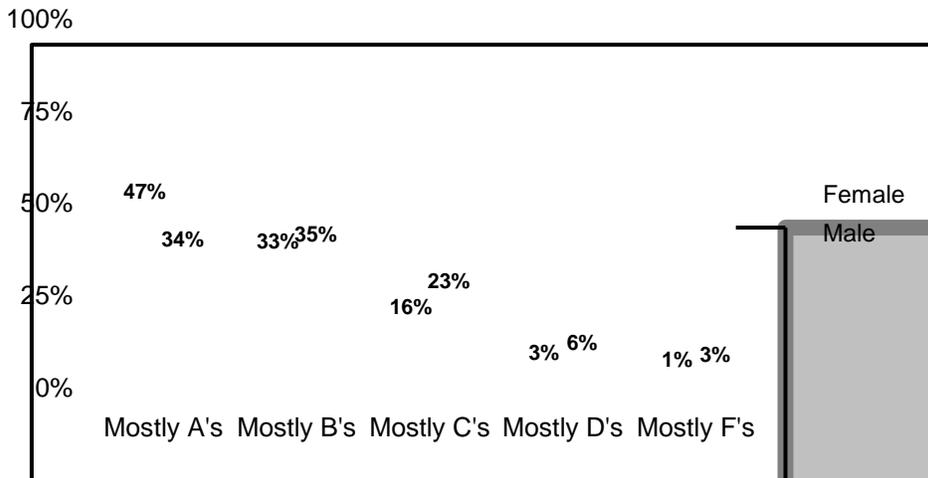


Table 21. Average Grades by Grade in School

	6 th – 8 th grade	8 th -9 th grade	10 th – 12 th grade
Mostly A's	43.5%	39.0%	36.5%
Mostly B's	34.4%	33.9%	35.0%
Mostly C's	16.5%	20.2%	21.8%
Mostly D's	3.8%	4.7%	4.9%
Mostly F's	1.7%	2.1%	1.6%

Absences

Youth were asked how many times they had missed school in the past four weeks due to illness, skipping or cutting, or for other reasons. The majority of youth who missed school reported doing so due to illness or other reasons. Only 14.8% of youth (males and females equally) reported missing school because they skipped or cut classes. A greater percentage of youth in the Southeast region reported missing school for all reasons, including skipping, than any other region. A greater percentage of youth reported skipping school as grade level or age increased, but missing because of illness or other reasons did not vary by grade or age.

Figure 13. Percent Absent in Past 4 Weeks

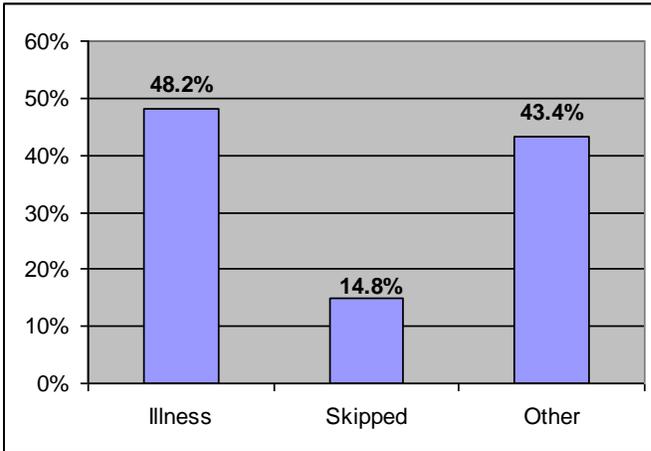


Figure 14. Absences in Past 4 Weeks by Gender

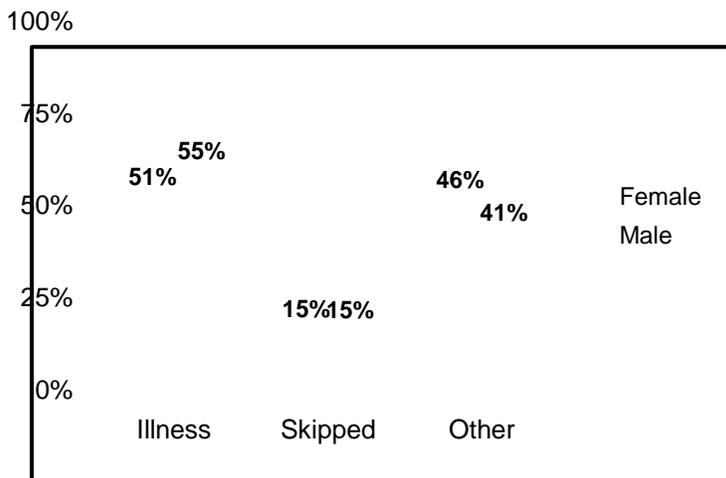


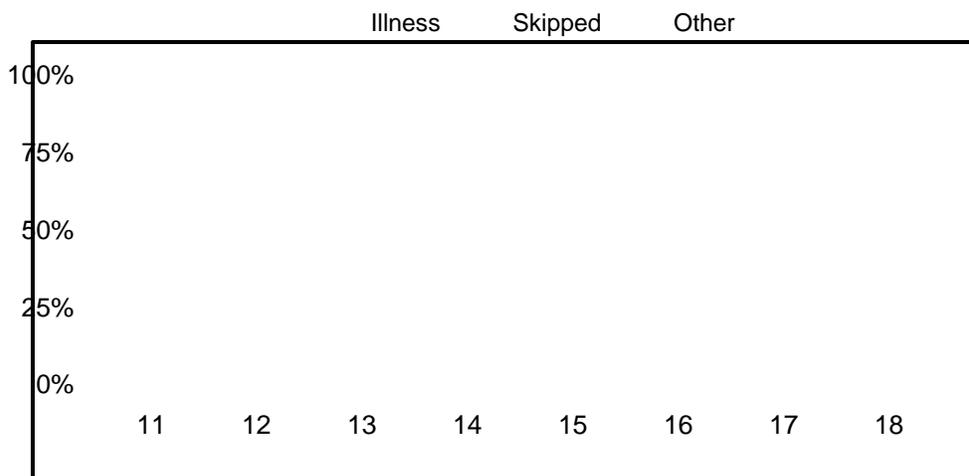
Table 22. Absences in Past 4 Weeks by Region

	Northwest	Central	Eastern	Southwest	Southeast
Missed because of illness	48.1%	47.9%	49.4%	46.7%	49.0%
Missed because of skipping or cutting	14.7%	14.4%	14.4%	14.5%	17.1%
Missed for other reason	41.9%	41.7%	44.3%	43.4%	45.4%

Table 23. Absences in Past 4 Weeks by Grade

	6 th – 8 th grade	9 th grade	10 th – 12 th grade
Missed because of illness	49.4%	45.9%	49.1%
Missed because of skipping or cutting	12.8%	14.6%	18.8%
Missed for other reason	43.4%	42.2%	44.8%

Figure 15. Absences in Past 4 Weeks by Age



School Bonding

Students were asked several questions concerning how they felt about school. Students felt fairly strongly that their teachers noticed when they did a good job, but felt somewhat less strongly about their school letting their parents know when they did something well. There was no difference between males and females or among planning regions; more older youth reported feeling positive toward their school than did younger youth, though differences were not pronounced for the most part.

Table 24. Participants' feelings about their school.

	YES!	yes	no	NO!
My teacher(s) notices when I am doing a good job and lets me know about it.	18.3%	54.2%	22.1%	5.4%
In my school, students have lots of chances to help decide things like class activities and rules.	9.1%	45.7%	30.6%	14.6%
My teachers praise me when I work hard in school.	9.0%	43.3%	37.9%	9.9%
The school lets my parents know when I have done something well.	8.8%	32.5%	42.4%	16.2%

Chapter 5 – Problem Behaviors

Table 25 displays an overview of problem behaviors among 2008 MSS youth. Almost half of all youth reported being pushed and shoved by someone, while slightly less than half the youth reported having seen someone carry some kind of a weapon. Around 40% of the sample reported having been in a physical fight. There were similar findings in the 2006 MSS with very comparable percentages for these top three problem behaviors in both 2008 and 2006. Likewise, less reported problem behaviors included taking a gun to school, stealing a vehicle, and using a weapon to threaten someone. Figures 16, 17 and 18 display a chart of the percentages of youth reporting different problem behaviors.

Table 25. Problem behaviors in Past 12 Months

	2006	2008
Been pushed, shoved, slapped, hit or kicked by someone who wasn't just kidding around	48.1%	48.2%
Seen someone carrying a gun, knife, or other weapon	45.0%	46.0%
Been in a physical fight	35.8%	39.0%
Been suspended from school	17.1%	18.7%
Been drunk or high at school	2.6%	13.1%
Been threatened or injured with a weapon such as a gun, knife, or club	11.2%	12.8%
Used any weapon to threaten or bully someone	7.3%	9.1%
Sold illegal drugs	6.0%	6.9%
Been arrested	5.1%	6.3%
Stolen or tried to steal a motor vehicle such as a car or motorcycle	3.4%	3.7%
Taken a gun to school	1.7%	1.9%

Figure 16. Weapon-Related Problem Behaviors

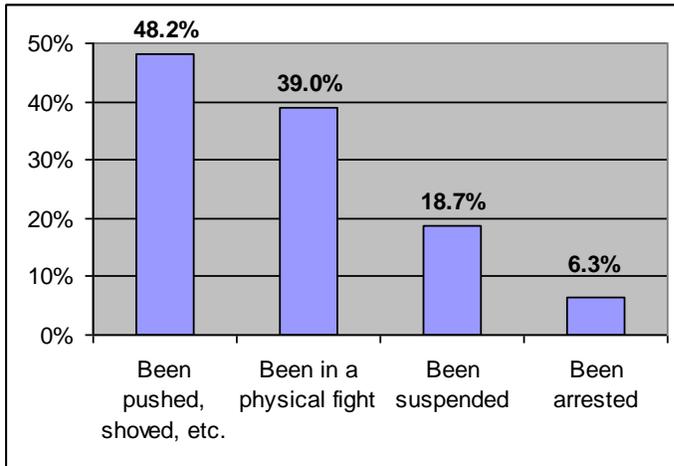


Figure 17. Other Problem Behaviors

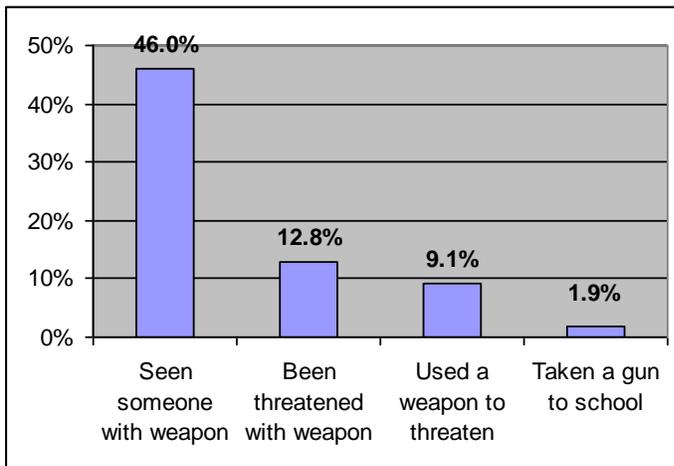
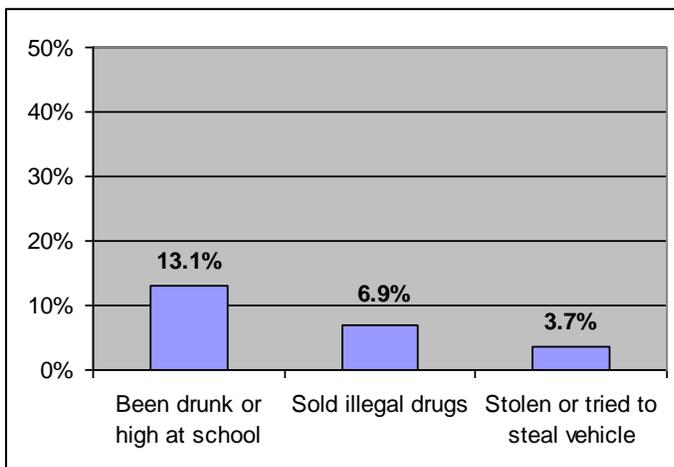


Figure 18. Drug-Related Problem Behaviors



When 11 problem behaviors were considered by region, youth in the Eastern region of Missouri scored the highest on 8. For the other 3, being pushed or shoved was the highest in the Southwest region, seeing someone carry a weapon was the highest in the Central region and using a weapon to threaten or bully someone was the most pronounced in the Northwest region when compared to others. Being pushed or shoved, however, was the most popular problem behaviors across all regions, followed by being in a physical fight. Taking a gun to school was reported as the lowest problem behavior across all regions (see Table 26 and Figures 19-21).

Table 26. Problem Behaviors in Past 12 Months by Region

	Northwest	Central	Eastern	Southwest	Southeast
Been arrested	6.9%	5.7%	7.6%	4.4%	5.8%
Been in a physical fight	38.4%	36.7%	42.3%	37.1%	38.3%
Used any weapon to threaten or bully someone	9.2%	7.8%	11.1%	7.7%	8.1%
Been pushed, shoved, slapped, hit or kicked by someone who wasn't just kidding around	47.3%	48.8%	47.0%	50.0%	49.1%
Been threatened or injured with a weapon such as a gun, knife, or club	13.1%	12.2%	13.7%	12.5%	11.9%
Seen someone carrying a gun, knife, or other weapon	44.6%	48.4%	46.4%	44.7%	47.1%
Been suspended from school	19.1%	16.2%	22.7%	16.1%	16.0%
Sold illegal drugs	6.8%	5.9%	8.8%	5.4%	6.1%
Stolen or tried to steal a motor vehicle such as a car or motorcycle	4.1%	3.2%	4.5%	3.1%	3.1%
Been drunk or high at school	13.0%	13.3%	14.1%	11.7%	12.8%
Taken a gun to school	2.0%	1.6%	2.3%	1.5%	1.6%

Figures 19. Weapon-Related Problem Behaviors by Region

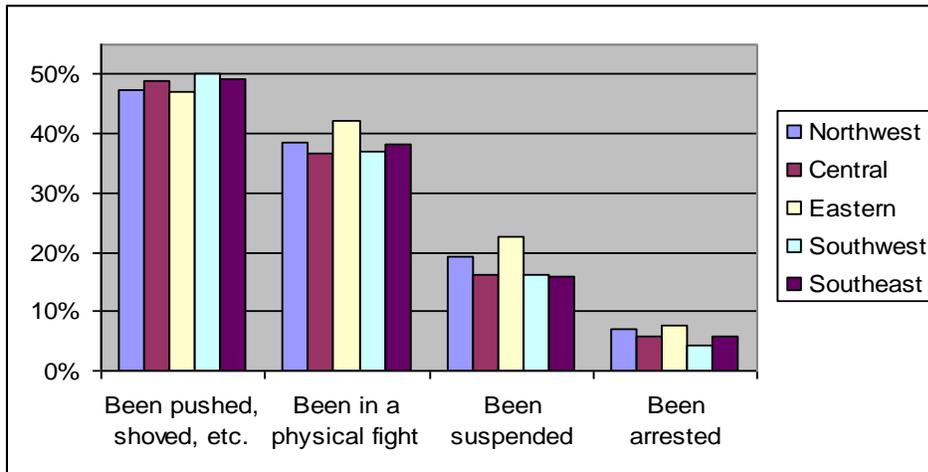


Figure 20. Other Problem Behaviors by Region

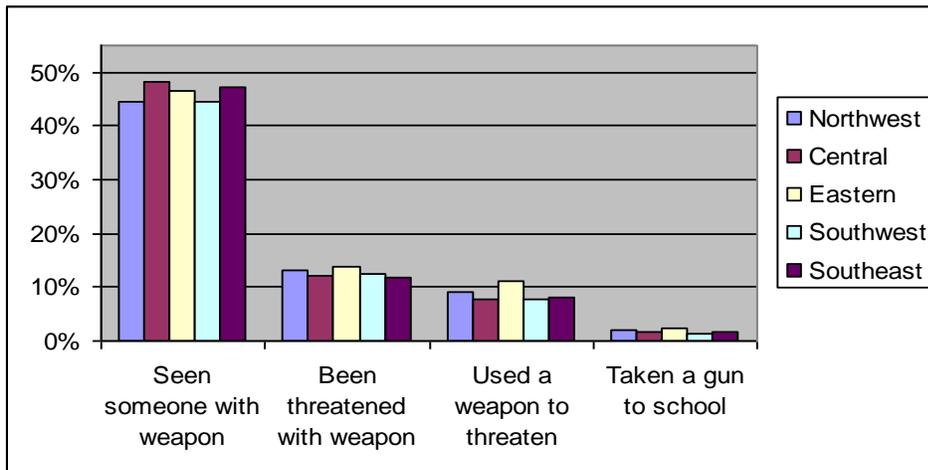
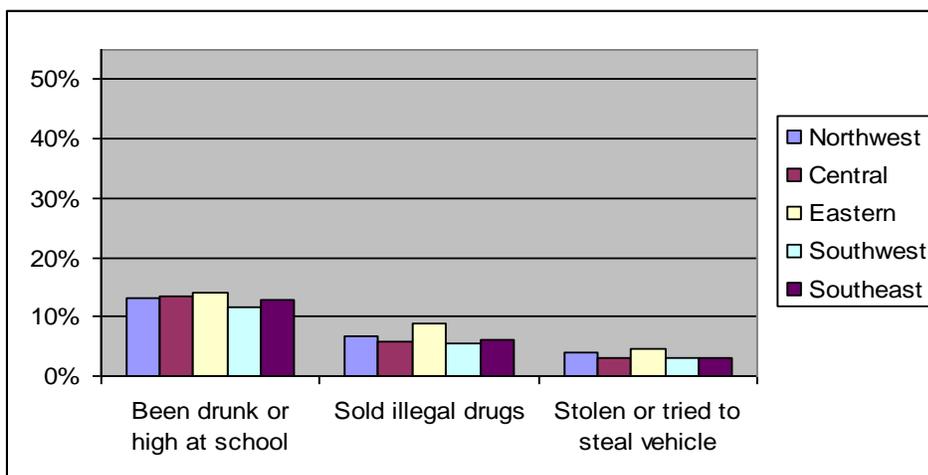


Figure 21. Drug-Related Problem Behaviors by Region



The majority of problem behaviors were more pronounced for males than for females (Table 27 and Figures 22-24). The biggest gender differences were in the percentage of youth reporting being in a physical fight, being suspended from school, being arrested, using a weapon to threaten or bully someone, and being threatened by a weapon. Less obvious differences were the percentage being drunk or high at school (13.0% of males versus 13.1% of females).

Table 27. Problem Behaviors in Past 12 Months by Gender

	Female	Male
Been pushed, shoved, slapped, hit or kicked by someone who wasn't just kidding around	42.3%	54.4%
Seen someone carrying a gun, knife, or other weapon	41.0%	51.2%
Been in a physical fight	28.3%	50.2%
Been suspended from school	14.8%	22.8%
Been threatened or injured with a weapon such as a gun, knife, or club	9.0%	16.9%
Been drunk or high at school	13.1%	13.0%
Used any weapon to threaten or bully someone	6.5%	11.8%
Been arrested	4.2%	8.4%
Sold illegal drugs	5.5%	8.3%
Stolen or tried to steal a motor vehicle such as a car or motorcycle	3.0%	4.6%
Taken a gun to school	1.3%	2.5%

Figures 22. Weapon-Related Problem Behaviors by Gender

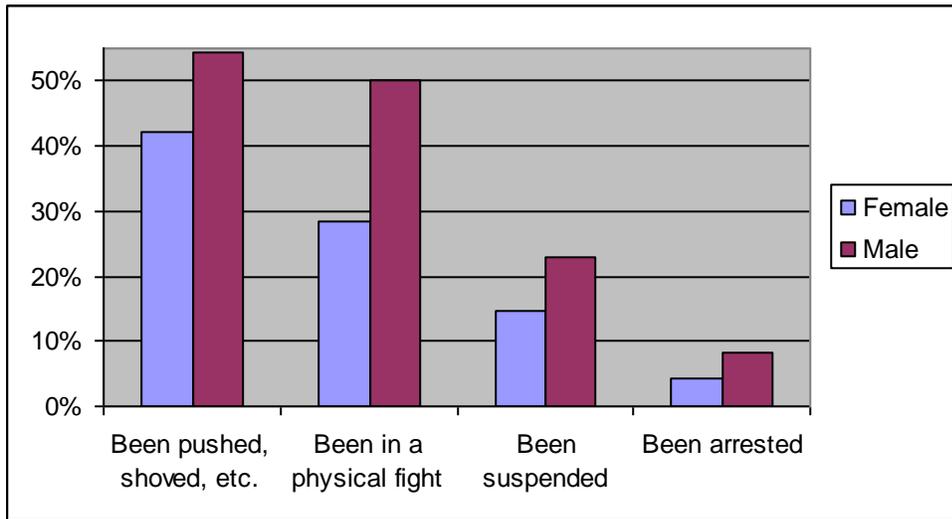


Figure 23. Other Problem Behaviors by Gender

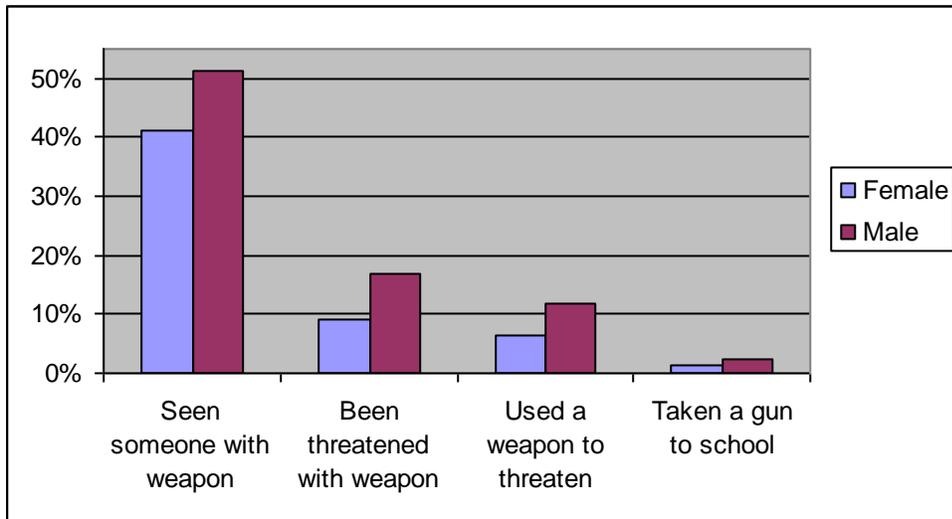
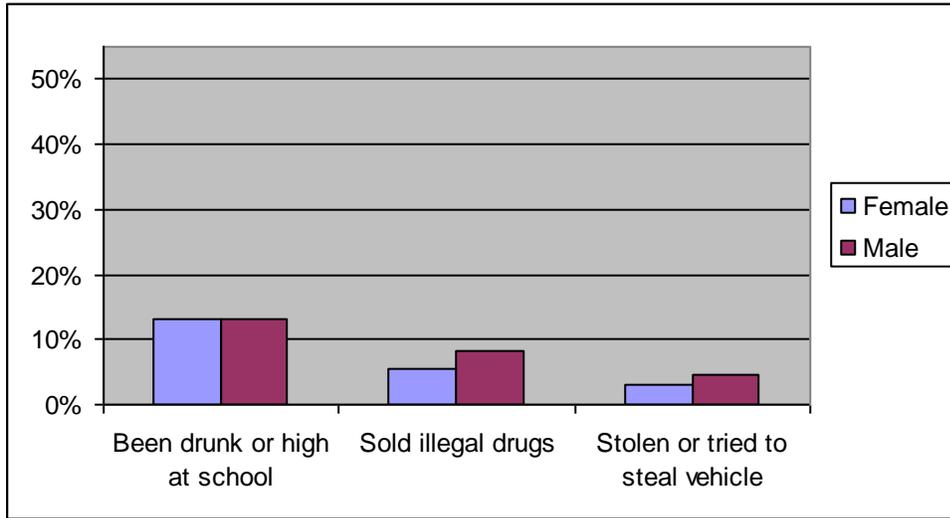


Figure 24. Drug-Related Problem Behaviors by Gender

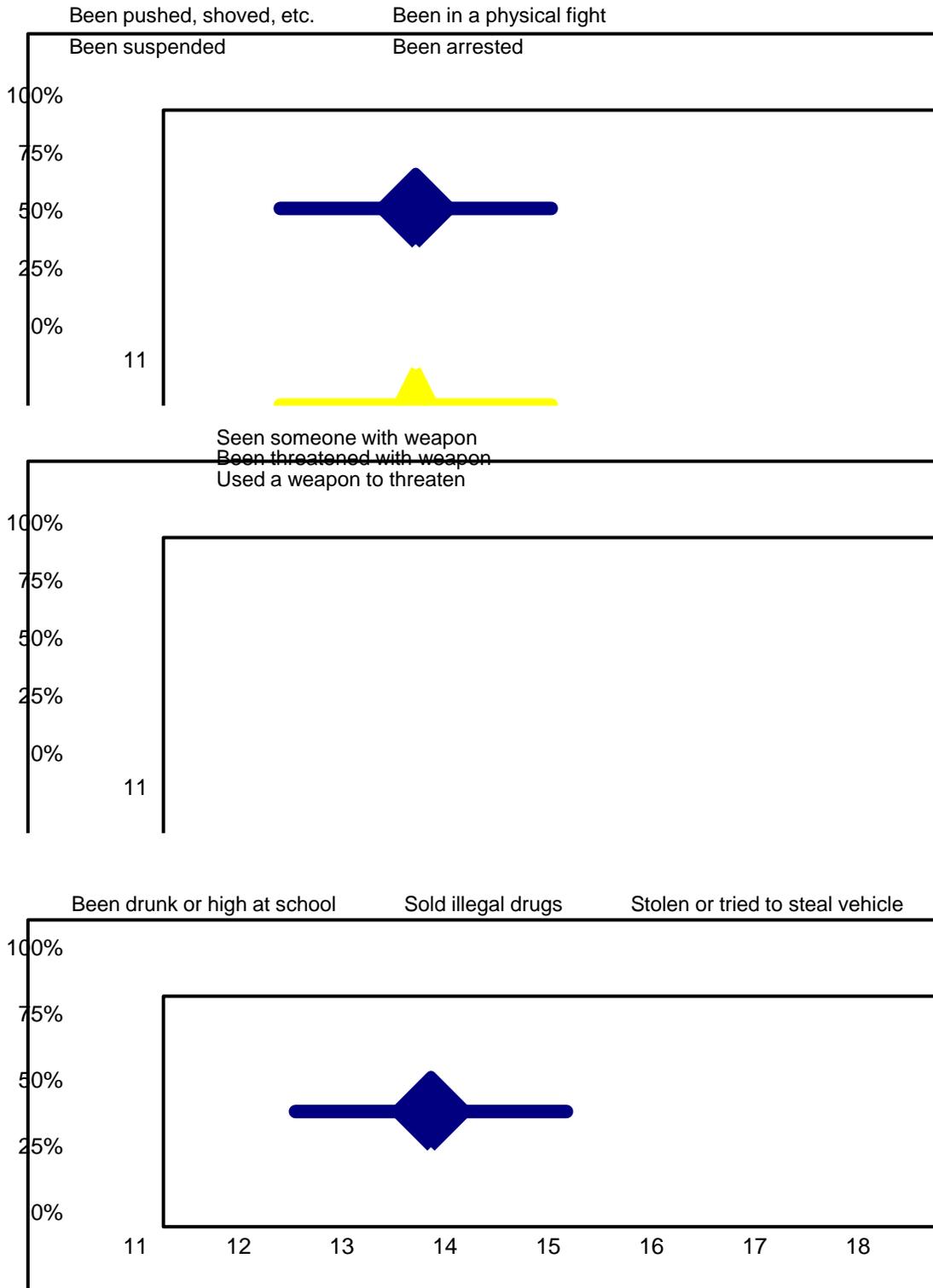


Certain behaviors were higher among older youth (arrests, drug selling and being drunk or high at school). Fighting or being pushed or shoved were most common among middle school youth. Other behaviors had similar percentages among all youth.

Table 28. Problem Behaviors in Past 12 Months by Grade

	6 th – 8 th grade	9 th grade	10 th – 12 th grade
Been arrested	4.3%	7.6%	8.1%
Been in a physical fight	41.4%	39.4%	33.9%
Used any weapon to threaten or bully someone	8.6%	9.7%	9.2%
Been pushed, shoved, slapped, hit or kicked by someone who wasn't just kidding around	53.7%	47.3%	39.5%
Been threatened or injured with a weapon such as a gun, knife, or club	12.6%	13.4%	12.5%
Seen someone carrying a gun, knife, or other weapon	44.2%	48.5%	46.2%
Been suspended from school	18.5%	20.1%	17.3%
Sold illegal drugs	4.0%	7.9%	10.6%
Stolen or tried to steal a motor vehicle such as a car or motorcycle	3.1%	4.3%	4.2%
Been drunk or high at school	8.0%	15.3%	19.3%
Taken a gun to school	1.7%	1.8%	2.3%

Figures 25, 26 and 28. Problem Behaviors among Missouri Youth by Age



Chapter 6 – Suicidal Ideation

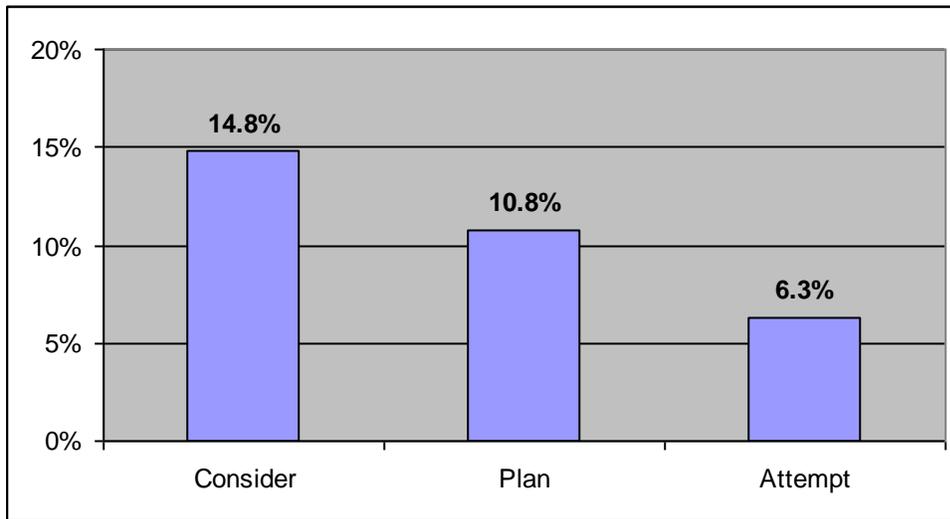
The MSS includes four questions related to suicidal ideation. Table 29 and Figure 28 show that in the past 12 months (1 year), 14.8% of Missouri youth reported seriously considered attempting suicide, while 10.8% actually made a plan for an attempt. Furthermore, 6.3% reported attempting suicide and 11.4% reported that their attempt ended in an injury or some kind of a treatment. Percentages were significantly higher for females than males, for those who did not feel supported by their parents, for those with problem behaviors, for those victimized by bullies, and for those who did poorly in school. In 2008, 45.6% of youth who felt they could get help from their parents, 43.8% who were injured or threatened with a weapon (40 or more times) and 41.5% of females who reported receiving “Mostly F’s” seriously considered suicide in the past year.

Table 29. Percentage of Youth who Considered, Made Plans, Attempted Suicide and Received Treatment for a Suicide Attempt (Past 12 Months)

	2004	2006	2008
Seriously considered attempting suicide	16.0%	14.3%	14.8%
Made a plan about how to attempt suicide	12.0%	10.2%	10.8%
Actually attempted suicide	7.0%	6.4%	6.3%
Attempt resulted in an injury, poisoning, or overdose that had to be treated by a doctor or nurse*	n/a	11.7%	11.4%

* Of those who attempted suicide.

Figure 28. Percentage of Youth who Considered Suicide, Made Plans for Suicide, or Attempted Suicide



Regional Differences

Differences across regions were minimal, though suicidal ideation was slightly higher in the Eastern region. The Northwest region had a slightly higher percentage of youth who attempted suicide and whose attempt resulted in some injury or treatment (Table 30).

Table 30. Percentage of Youth who Considered Suicide, Made Plans for Suicide, Attempted Suicide and Received Treatment for a Suicide Attempt by Region (Past 12 Months)

	Northwest	Central	Eastern	Southwest	Southeast
Seriously considered attempting suicide	14.5%	14.4%	15.3%	14.1%	15.2%
Made a plan about how to attempt suicide	10.7%	10.4%	11.3%	10.5%	10.7%
Actually attempted suicide	6.4%	6.1%	6.6%	6.0%	6.3%
Attempt resulted in an injury, poisoning, or overdose that had to be treated by a doctor or nurse*	12.2%	11.1%	11.5%	11.2%	10.3%

* Of those who attempted suicide.

Gender

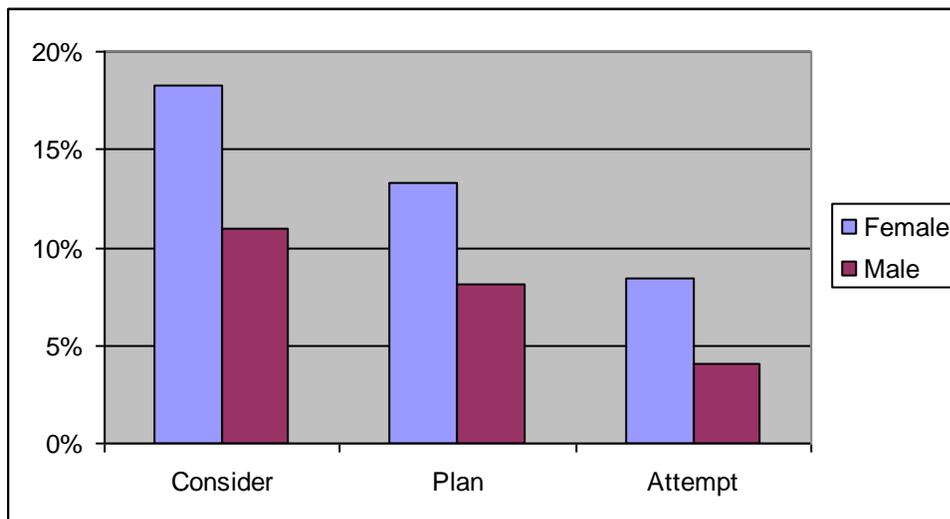
More females than males are at a risk of considering suicide, making a plan to do so, actually attempting and having an attempt result in an injury or treatment. Almost one in five females seriously considered suicide in the past year.

Table 31. Percentage of Youth Who Considered Suicide, Made Plans for Suicide, Attempted Suicide and Received Treatment for a Suicide Attempt by Gender (Past 12 Months)

	Female	Male
Seriously considered attempting suicide	18.3%	11.0%
Made a plan about how to attempt suicide	13.3%	8.1%
Actually attempted suicide	8.4%	4.1%
Attempt resulted in an injury, poisoning, or overdose that had to be treated by a doctor or nurse*	13.8%	8.8%

* Of those who attempted suicide.

Figure 29. Percentage of Youth who Considered Suicide, Made Plans for Suicide, and Attempted Suicide by Gender (Past 12 Months)



Age and Grade in School

When youth suicide data is considered by grade, 9th graders most frequently reported seriously considering a suicide attempt (16.6%) versus 13.4% and 14.8% of 6th-8th and 10th-12th graders, respectively. Compared to 12.3% of 9th graders who made a plan to attempt suicide, 9.6% of 6th-8th graders and 10.9% of 10th-12th graders reported doing so, respectively. The rates were also the highest for 9th graders when it comes to actually attempting suicide (7.3%) and the attempt resulting in an injury or treatment (12.9%). Clearly, the majority of those at risk for suicide were in 9th (see Table 32). Figure 31 shows these distributions by age.

Table 32. Percentage of Youth who Considered Suicide, Made Plans for Suicide, and Attempted Suicide by Grade (Past 12 Months)

	6 th – 8 th grade	9 th grade	10 th – 12 th grade
Seriously considered attempting suicide	13.4%	16.6%	14.8%
Made a plan about how to attempt suicide	9.6%	12.3%	10.9%
Actually attempted suicide	5.9%	7.3%	5.8%
Attempt resulted in an injury, poisoning, or overdose that had to be treated by a doctor or nurse*	10.1%	12.9%	11.7%

* Of those who attempted suicide.

Figure 30. Percentage of Youth who Considered Suicide, Made Plans for Suicide, and Attempted Suicide by Age (Past 12 Months)

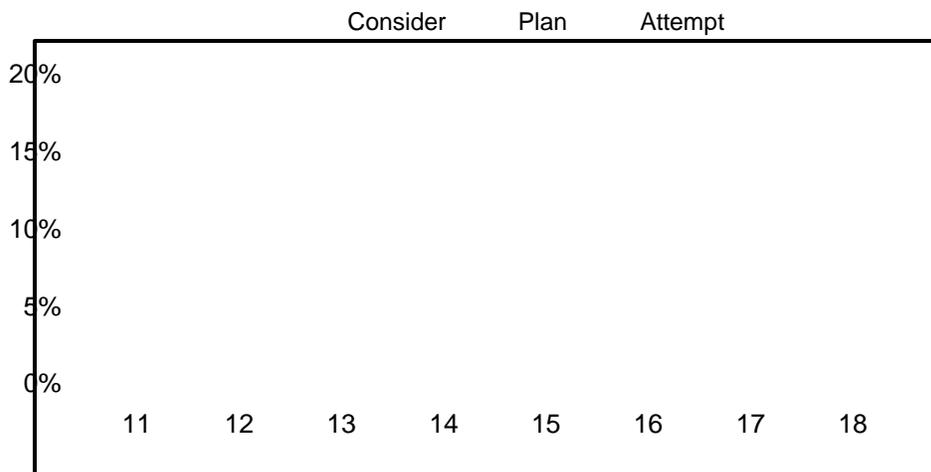
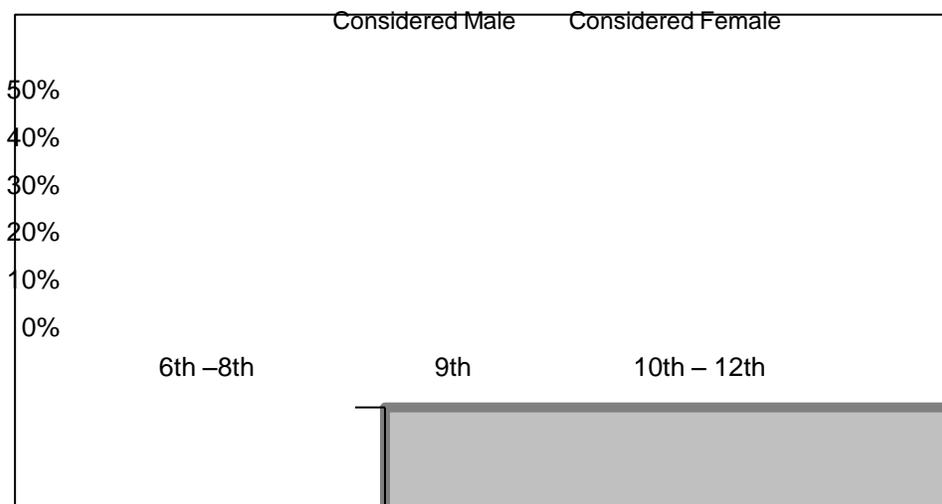


Table 33 below shows suicide rates by grade and gender. Consistent with data reported above, a greater number of females reported considering, planning and attempting suicide than males, and the rates for females were the highest in 8th-9th grades, followed by 10th-12th and 6th-8th grades. For males, the rates for considering and planning suicide were the highest for 10th-12th graders, followed by 9th and 6th-7th graders, respectively. Over 21% of all 8th-9th grade females had considered suicide in the past year.

Table 33. Percentage of Youth who Considered Suicide, Made Plans for Suicide and Attempted Suicide by Grade and Gender

	Considered		Planned		Attempted	
	Male	Female	Male	Female	Male	Female
6 th – 8 th	9.3%	12.9%	6.5%	8.9%	3.4%	5.7%
9 th	11.4%	21.1%	8.4%	15.6%	4.3%	10.2%
10 th – 12 th	11.7%	17.8%	9.0%	12.6%	4.3%	7.1%

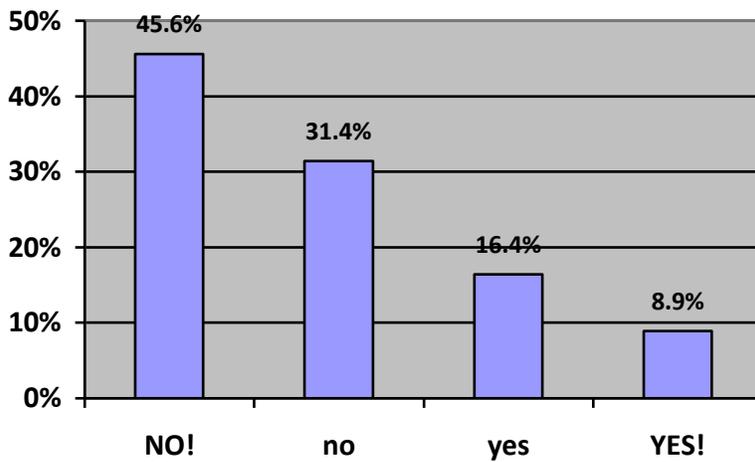
Figure 31. Percentage of Males and Females Who Considered Suicide in Past Year by Grade in School



Parental Support

Youth were asked a series of questions about their relationship with their parents. Generally, those who felt less connected to their parents reported more suicidal ideation. As presented in Figure 32, 45.6% of youth who felt strongly that they could not ask their parents for help with a personal problem had considered suicide in the past year.

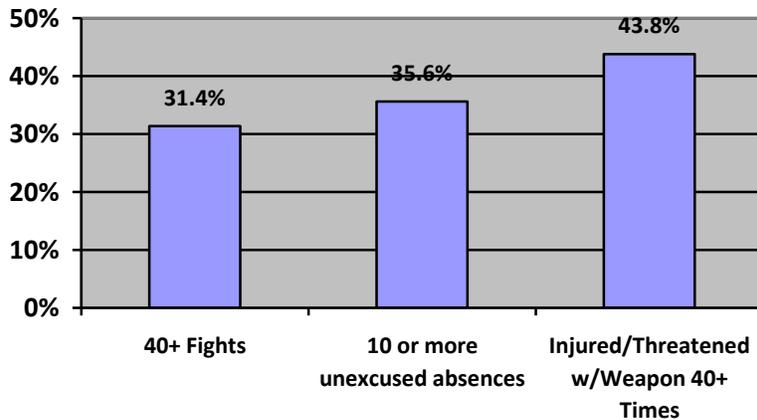
Figure 32. Youth Feels He or She Can Ask Parents for Help with Personal Problem



Problem Behaviors

As described in the previous chapter, the MSS measured several problem behaviors, including those who are aggressive (physically and emotionally) and those who have been bullied. Youth who engage in these behaviors, either as aggressors or victims, are more likely to have reported suicidal ideation in the past year. Thirty-two percent (31.4%) of those in 40 or more fights per year, 35.6% with 11 or more unexcused absences, and 43.8% who have been injured or threatened with a weapon 40 or more times had considered suicide in the past year.

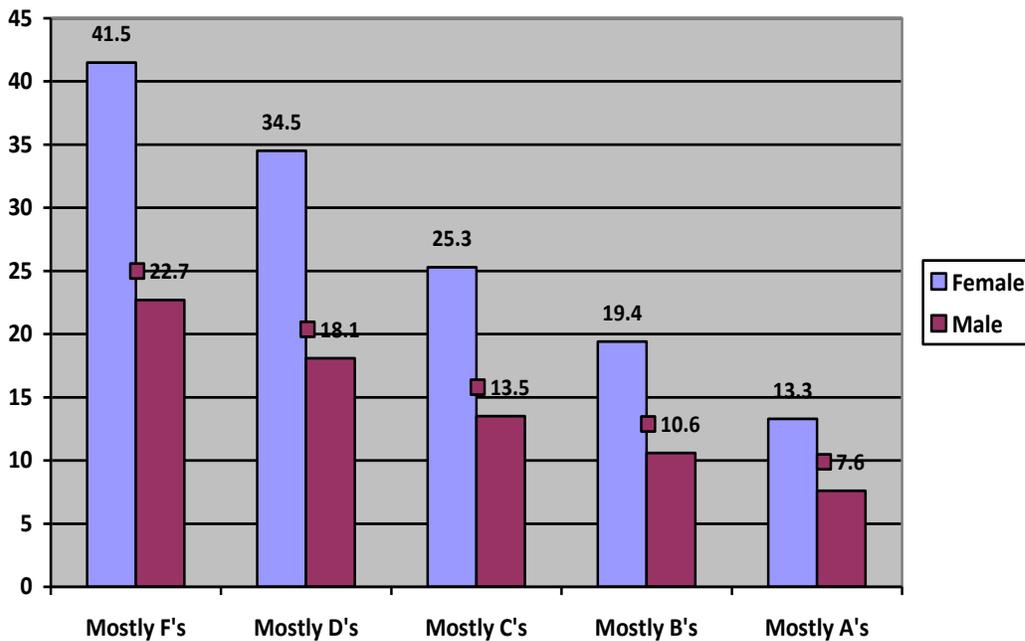
Figure 33. 40 or More Fights, 11 or More Unexcused Absences, and Threatened or Injured With Weapon 40 or More Times.



School Performance

Finally, when suicidal ideation is analyzed according to school performance, 41.5% of all females reporting receiving “Mostly F’s” said they had seriously considered suicide in the past 12 months.

Figure 34. Percentage of Males and Females Who Seriously Considered Suicide in Past Year According to their School Performance.



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APPENDIX

Method

Sampling Method

In 2004, 2006 and 2008, the MSS was administered in a web-based format to 9th grade students across all 524 Missouri public school districts. Districts were also asked to administer the survey to one other grade between the 6th and 12th grades. An instrument created jointly by the Missouri Departments of Elementary and Secondary Education and Mental Health with the help of MIMH was used by SmartTrack, a web-based survey administration service that develops the automated assessment. In 2008, both the Department of Mental Health's Division of Alcohol and Drug Abuse and the Department of Elementary and Secondary Education made significant efforts to increase the sample size and thus include more students and school districts in the sample. As a result, the sample size for 2008 (n = 126,923) was twice the size of both the 2004 (n = 43,987) and 2006 sample (n = 68,807).

Consent and Confidentiality

In 2008, active consent to participate in the MSS was no longer required. Parents were given a letter explaining the survey and were asked to notify the school if they did not want to participate. Active consent procedures were used in prior administrations of the MSS. Authorized personnel at each participating school initialized the survey to ensure that only eligible students had access. After completion of each individual survey, student responses were submitted to a database. The survey procedures used were designed to protect the anonymity of the participating students.

Instrument

The MSS is a 116-item instrument that explores student characteristics, drug and alcohol use, and participation in antisocial behavior. The survey uses the framework designed by Hawkins, Catalano, and Miller (1992) to assess risk and protective factors concerning the students' individual and peer, family, school, and community perceptions, indicative of drug use and antisocial behavior.

Drug and alcohol use were assessed by asking lifetime use (“have you ever used...”), past 30-day use (measured in days and times), and for some drugs, use on school property within the past 30-days. Additional questions assessed the number of cigarettes smoked per day as well as binge drinking, defined here as drinking five or more alcoholic drinks in a row within the past two weeks.

There were no changes in questions from 2004 to 2008.

Cleaning Procedures

To ensure validity of the data, a thorough data cleaning process was conducted which include review of consistency of response patterns, respondent fatigue, and respondent honesty.

Honesty was assessed both through the use of a “fake drug” and by asking the youth how honestly they answered the questions. Two “fake drug questions” were included that explored lifetime and 30-day use. Any student who responded that they had used “derbisol” (fake drug) either in their lifetime or in the past 30 days was excluded from the remainder of the analysis. In addition to these questions, students were asked to indicate the degree to which they were honest when completing the survey on a five-point scale from “I was very honest” to “I was not honest at all.” Participants who answered they were “very honest” or “honest pretty much of the time” were kept in the sample. Those who answered they were honest “once in a while” or “not honest at all” were eliminated from the sample.

Responses for students who inconsistently answered the drug use questions were recoded and remained in the analyses. Responses were recoded toward the more specific response. For example, the response to the lifetime use question was recoded from “no” to “yes” if a student indicated that he smoked cigarettes within the past 30-days, but reported that he had never smoked in their lifetime.

A total of 11,803 students were deleted after all validity checks were completed. The number of responses varies across each of the questions, i.e., not every students responded to each questions, hence some questions had a greater response rate than others.